Claims

1-17 Canceled

18. (New) A method for stabilizing a car-trailer combination, including a towing vehicle and a trailer moved by the towing vehicle, the method comprising:

monitoring rolling motions of the towing vehicle including yaw velocity of the vehicle;

detecting an actual or expected unstable driving condition of the towing vehicle or the car-trailer combination; and

performing measures to stabilize the driving condition, wherein the measures that stabilize driving are controlled dependent on a differential value that is produced from the monitored yaw velocity and a model-based yaw velocity and evaluated according to criteria indicative of an unstable driving performance.

19. (New) The method according to Claim 18 further comprising:

determining a frequency and an amplitude of each half wave of the differential value;

comparing the determined frequency and amplitude with stored values; and

evaluating the rolling motion of the car-trailer combination dependent on the result of the comparison.

20. (New) The method according to Claim 19, the frequency is determined from zero crossings and a time between two zero crossings of the differential value.

21. (New) The method according to Claim 19 further comprising:

counting a number of the half waves of the differential value, where the amplitude of each half wave reaches or exceeds a threshold value, and where each positive and negative half wave of the determined frequency lies within a band defined by a top and a bottom threshold value; and

initiating measures that stabilize driving when a threshold value representative of a number of half waves is reached or exceeded.

22. (New) The method according to Claim 21, wherein the threshold value representative of a number of half waves is determined in dependence on the frequency.

23. (New) The method according to Claim 22, wherein at low frequencies, the threshold value is reached or exceeded with a smaller number of half waves than is the case at a high frequency.

24. (New) The method according to claim 22, wherein the threshold value of each half wave representative of the amplitude is determined at least in dependence on quantities that represent the velocity of the towing vehicle or the car-trailer combination or the trailer.

25. (New) The method according to claim 24, wherein with quantities describing a high speed, the threshold value is reached or exceeded at lower amplitudes than with quantities describing a low speed.

26. (New) The method according to claim 21, wherein only a consecutive number of half waves of the differential value is counted, where the amplitude of each half wave reaches or exceeds an entry threshold value, and in that the measures that stabilize driving are terminated when values reach or fall below only one exit threshold value ranging below the entry threshold value.

27. (New) The method according to claim 18, wherein data is produced from a variation of the differential value.

28. (New) The method according to claim 18, wherein the differential value is weighted with a value, which is produced in dependence on a steering angle velocity or a steering angle acceleration or the model-based yaw rate.

29. (New) The method according to claim 18, wherein lateral acceleration is detected and the variation of the lateral acceleration is evaluated according to criteria which allow checking plausibility of the data obtained from the variation of the differential value and being assessed according to criteria indicative of an unstable driving performance.

30. (New) The method according to claim 29, wherein a maximum and minimum values of the lateral acceleration and temporal distances of the maximum and minimum are determined, a frequency is determined and the determined frequency is compared with the frequency of the differential value.

31. (New) The method according to claim 29 further comprising:

discontinuing the measures that stabilize driving when at least one of the following conditions is satisfied:

a frequency of a lateral signal, in particular the lateral acceleration, and/or the differential value reaches or exceeds or, respectively, falls below a top or a bottom threshold value;

a frequency of the lateral signal changes in relation to the frequency of the differential value towards a top or a bottom limit value;

an absolute value of an average value of the lateral signal exceeds a threshold value.

an amplitude of the lateral signal decreases with a high gradient; and

a difference between the maximum and minimum values of the lateral signal lies in a narrow band.

32. (New) The method according to claim 29, wherein a phase shift between the lateral acceleration and the differential value is determined and evaluated according to criteria that permit defining driving situations.

33. (New) The method according to claim 32, wherein the measures that stabilize driving are discontinued or the method is terminated, respectively, when a threshold value indicative of a great phase shift is exceeded.

34. (New) A device for stabilizing a car-trailer combination, including a towing vehicle and a trailer moved by the towing vehicle, wherein the towing vehicle is monitored in terms of rolling motions and measures that stabilize driving are taken upon the detection of an actual or expected unstable driving performance of the towing vehicle or the car-trailer combination, the device comprising:

a driving stability control having at least a yaw rate sensor for sensing the yaw velocity and a vehicle model for producing a reference yaw velocity;

a determining unit for determining a differential value from the yaw velocity and the reference yaw velocity; and

a control unit controlling measures that stabilize driving dependent on data being obtained from the variation of the differential value and evaluated according to criteria indicative of an unstable driving performance.